

CLAIMS

What is claimed is:

- 5 1. A kit for converting a conventional garage door opener for a vertically sliding door to a door opener for opening an outwardly swinging door mounted for pivotal movement with substantially vertically aligned hinges disposed on one side of the outwardly swinging door such that the outwardly swinging door swings outwardly to reveal an opening, the conventional garage door opener having a motor operating a drive
10 mechanism along a track for moving a movable trolley connectable to the vertically sliding door, the kit comprising:
 a trolley coupling adapted to mount to the movable trolley;
 a door coupling adapted to mount to the outwardly swinging door; and
 at least one push bar having a first end and second end, wherein the push bar is
15 adapted to pivotally couple at the first end with the trolley coupling and further adapted to pivotally couple at the second end with the door coupling such that the at least one push bar extends between the movable trolley and the outwardly swinging door to control the opening and closing of the outwardly swinging door in response to the drive mechanism moving the trolley along the track.
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2. The kit of claim 1, wherein the movable trolley comprises a first trolley mechanism slidable along the track.
- 25 3. The kit of claim 2, further comprising a second trolley mechanism slidable along the track and adapted to be coupled to the first trolley mechanism and the at least one push bar using the trolley coupling.
- 30 4. The kit of claim 1, further comprising a second door coupling mountable on a second outwardly swinging door.
5. The kit of claim 4 wherein the at least one push bar comprises a first push bar and a second push bar, the first push bar adapted to be coupled to the trolley coupling and the

door coupling, and the second push bar adapted to be coupled to the trolley coupling and the second door coupling.

6. The kit of claim 1, wherein the at least one push bar further comprises at least one
5 adjustment mechanism for adjusting the length of the at least one push bar.

7. The kit of claim 1, wherein the at least one push bar further comprises at least one
slip joint coupled with a spring for automatically adjusting the length of the at least one
push bar.

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8. The kit of claim 1, further comprising a stabilizer adapted to support the at least one
push bar.

9. A door opener for opening an outwardly swinging door mounted for pivotal
15 movement with substantially vertically aligned hinges disposed on one side of the
outwardly swinging door such that the door swings outwardly to reveal an opening, the
door opener comprising:

a track disposed to extend inwardly in a direction substantially opposite from the
outwardly swinging door;

20 a trolley slidably coupled with the track, such that the trolley can move along the
track directionally generally toward the outwardly swinging door and away from the
outwardly swinging door;

at least one push bar having a first end and second end, the push bar being
pivotally coupled with the trolley at the first end and with the outwardly swinging door
25 at the second end;

wherein movement of the trolley along the track in a direction toward the
outwardly swinging door causes the push bar to push the outwardly swinging door
outwardly away from the trolley to reveal the opening while the push bar pivots forming
an increasing angle with the track; and

30 wherein movement of the trolley along the track in a direction away from the
outwardly swinging door causes the push bar to pull the outwardly swinging door
inwardly toward the trolley to conceal the opening while the push bar pivots forming a
decreasing angle with the track.

10. The door opener of claim 9, further comprising a drive mechanism for moving the trolley along the track.

5 11. The door opener of claim 10, wherein the drive mechanism comprises at least one of a screw drive and a chain drive.

12. The door opener of claim 10, further comprising a motor for powering the drive mechanism.

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13. The door opener of claim 9, wherein the trolley comprises a first trolley mechanism and a second trolley mechanism, the first trolley mechanism coupled with the second trolley mechanism.

15 14. The door opener of claim 9, wherein the at least one push bar further comprises at least one adjustment mechanism for adjusting the length of the at least one push bar.

15. The door opener of claim 9, wherein the at least one push bar further comprises at least one slip joint coupled with a spring for automatically adjusting the length of the at
20 least one push bar.

16. The door opener of claim 15, wherein the at least one slip joint coupled with a spring enables lengthening of the at least one push bar while the at least one push bar maintains a pulling force on the door when the trolley moves in the direction away from
25 the outwardly swinging door.

17. The door opener of claim 9, further comprising a stabilizer bar for supporting the at least one push bar.

30 18. The door opener of claim 1, wherein the at least one push bar comprises a first push bar and a second push bar, the first push bar and the second push bar being disposed on opposing sides of the track.

19. The door opener of claim 18, wherein the door opener is configured to open two outwardly swinging doors substantially simultaneously.

20. A door opener for opening a door mounted for pivotal movement with substantially
5 vertically aligned hinges disposed on one side of the door such that the door swings outwardly to reveal an opening, the door opener comprising:

a track means disposed to extend inwardly in a direction substantially opposite from the outwardly swinging door;

a trolley means slidably coupled with the track means, such that the trolley
10 means can move along the track means directionally generally toward the door and away from the door;

at least one push bar means having a first end and second end, the push bar means being pivotally coupled with the trolley means at the first end and with the door at the second end;

15 wherein movement of the trolley means along the track means in a direction toward the door causes the push bar means to push the door outwardly away from the trolley means to reveal the opening while the push bar means pivots forming an increasing angle with the track means; and

20 wherein movement of the trolley means along the track means in a direction away from the door causes the push bar means to pull the door inwardly toward the trolley means to conceal the opening while the push bar means pivots forming a decreasing angle with the track means.